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Correction to “A new estimator of the discovery probability” by Stefano Favaro, Antonio Lijoi and Igor Prünster; 68, 1188-1196, December 2012

The present note corrects formula (12) in Theorem 2 and formula (17) in Proposition 3 that contain a slight inaccuracy.

The correct expression of (12) in Theorem 2 is given by

$$\begin{aligned}\hat{U}_{n+m}(k) = & \sum_{i=1}^k l_i(i - \sigma)_{k+1-i} \binom{m}{k-i} Q_{m,k}^{(n,j)}(i, 0, i - \sigma) \\ & + \sigma(1 - \sigma)_k \binom{m}{k} Q_{m,k}^{(n,j)}(1, 1, 0)\end{aligned}\quad (12)$$

where

$$\begin{aligned}Q_{m,l}^{(n,j)}(\alpha, \beta, \gamma) := & \sum_{k=\beta}^{m-l+\alpha} \frac{V_{n+m+1,j+k}}{V_{n,j}} \\ & \times \frac{\mathcal{C}(m-l+\alpha-\beta, k-\beta; \sigma, -n+j\sigma+\gamma)}{\sigma^k}.\end{aligned}$$

Hence, the correction concerns the first argument of the generalized factorial coefficient \mathcal{C} which is $m-l+\alpha-\beta$ and not $m-l+\alpha$ and, consequently, $Q_{m,k}^{(n,j)}$ in the last summand of (12) which is $Q_{m,k}^{(n,j)}(1, 1, 0)$ instead of $Q_{m,k}^{(n,j)}(0, 1, 0)$.

The inaccuracy originates from the very last displayed formula in the proof of Theorem 2 in the Web Appendix (see page 8) and boils down to a missing summand: indeed, the sum in the formula should run from 1 to $m-k+1$ instead of $m-k$. This then leads also to a minor modification of the corresponding formula in the special case of a two-parameter Poisson–Dirichlet process prior: (17) should be

$$\begin{aligned}\hat{U}_{n+m}(k) = & \sum_{i=1}^k l_i(i - \sigma)_{k+1-i} \binom{m}{k-i} \frac{(\theta + n - i + \sigma)_{m-k+i}}{(\theta + n)_{m+1}} \\ & + (1 - \sigma)_k \binom{m}{k} (\theta + j\sigma) \frac{(\theta + n + \sigma)_{m-k}}{(\theta + n)_{m+1}}\end{aligned}\quad (17)$$

The estimator in (17) was then applied to the EST datasets in Section 3 and it is to be noted that all the displayed numerical results are not altered by the inaccuracy, since the missing term is negligible.

The Matlab code that is available with Favaro et al. (2012) at the Biometrics website on

Wiley Online Library has been replaced with the corrected code, which includes the above modification to (17).

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